

Clinical Microbiology and Infectious Diseases Working together

An "ESCMID perspective".

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"Emerging diseases 1974 -

Hepatitis B

Ebolavirus

Legionella

Campylobacter

HTLV

STSS

EHEC

Borrelia burgdorffi

HIV

Helicobacter pylori

Erlichia

Hepatitis C

Multidrug resistance

CM and ID

The ESCMID view

- two sides of the same coin
- emphasizes CM and ID equally
- considers both separate specialties
- encourages interaction between them
- both in need of a European curriculum

....today there are many ways in which
you can become and be a CM and an ID
physician in Europe.

The ESCMID view

- For modern medicine (transplantation, replacement surgery, cancer therapy, intensive care...) to be successful, it must be possible to diagnose, prevent and/or cure infections
....and for this both specialties are equally needed.
- Both must develop, independantly and together, and both have great responsibilities in explaining to colleagues, to the public and to politicians, the dire situation threatening us with the lack of effective antimicrobials.



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Welcome to the European Society of Clinical Microbiology and Infectious Diseases

The European Society of Clinical Microbiology and Infectious Diseases is a non-profit organisation whose mission is to improve the diagnosis, treatment and prevention of infection-related diseases. This is achieved by promoting and supporting research, education, training, and good medical practice.

[about ESCMID](#)

News & Discussion

Your direct link to all sorts of news and information in the infection fields - position papers, press releases, and news on what is happening at...

Research & Projects

Find out about ESCMID Study Groups or collaborative projects such as the European Committee on Antimicrobial Susceptibility Testing (EUCAST), Genomics in Combat

Latest News

28 October 2011

What's new in ESCMID CM/ID ESCMID educational activities



Continuous education is a must for ID/CM professionals. [Register for ECCMID 2012](#) and choose from a variety of [educational workshops](#) taking place in London in March and April 2012. For younger clinicians and scientists ESCMID also offers a [Trainee Day at ECCMID 2012](#). Later in the year the [11th ESCMID Summer School](#) in Innsbruck, Austria, 21-27 July 2012: save the date! You can either [download](#) the ESCMID Events Flyer or check out [the online calendar](#).

Remember to activate your free 2011 membership with the newly-founded ESCMID

22nd
ECCMID

London, UK
31 March – 3 April 2012

23rd
ECCMID

Berlin, Germany
27 – 30 April 2013

ESCMID

CM and ID working together

- 4 - 5 000 members
- A Society with charity status registered in Switzerland
- **ESCMID membership registration**
– new site now open
- (control, prevention, education and research)
- Members from all European countries but also many from countries outside Europe.
- Organiser of ECCMID – the yearly European Congress of Clinical microbiology and Infectious Diseases - with 10 000 participants
 - London 2012, Berlin 2013

ESCMID working groups

- Summarise "state of the art"
- Science – providing an arena and grants
- Education (Post-Graduate courses, workshops)
- Guidelines
 - AMR Surveillance
 - Anaerobes
 - C.difficile
 - Helicobacter
 - M.tuberculosis
 - Pk/Pd
 - etc

ESCMID education

Education officer Murat Akova

- **Postgraduate courses** all over Europe for CM and ID: Madrid, London, Amsterdam, Izmir, Sebenic, Gulf states and many other places
- **Summer school** – Innsbruck 2012.
- ESCMID website "**Online Library**"
- **Pre-ECCMID Workshops** (8 – 10 / year)

ESCMID

CM and ID working together



- EUCAST is organised by ESCMID and ECDC.
- ESCMID provides expertise, structure and implementation
- ECDC provides regulatory framework in public health (and finances EUCAST)
- EMA provides regulatory framework in approval and registration of antimicrobial drugs.



[Organization](#)

[EUCAST News](#)

[Clinical breakpoints](#)

[Expert rules](#)

[MIC - distributions and QC](#)

[Zone diameter distributions](#)

[EUCAST disk diffusion test](#)

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The European Committee on Antimicrobial Susceptibility Testing - EUCAST

EUCAST is a standing committee jointly organized by ESCMID, ECDC and European national breakpoint committees. EUCAST deals with breakpoints and technical aspects of phenotypic in vitro antimicrobial susceptibility testing and functions as the breakpoint committee of EMA and ECDC. EUCAST does not

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other countries, FESCI and ISC. The Steering Committee also consults on EUCAST proposals with experts within the fields of infectious diseases and microbiology, pharmaceutical companies and susceptibility testing device manufacturers.

EUCAST has a subcommittee on antifungal susceptibility testing. Subcommittees on expert rules for antimicrobial susceptibility testing and antimicrobial susceptibility testing of anaerobes have completed their tasks and have been disbanded.

Most antimicrobial MIC breakpoints in Europe have been harmonised by EUCAST. Breakpoints for new agents are set as part of the licensing process for new agents through EMA. EUCAST breakpoints are available in devices for automated susceptibility testing but with some limitations, depending on the system. A disk diffusion susceptibility test method calibrated to EUCAST MIC breakpoints is also available.

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EUCAST News



01 Nov 2011

Consultation on Aspergillus breakpoints for posaconazole

[Download](#)

01 Nov 2011

Consultation on Aspergillus breakpoints for itraconazole

[Download](#)

29 Oct 2011

New EUCAST Expert Rules now online

[Download](#)

The (R)evolution in medical microbiology

- Laboratory medicine in general and microbiology in particular is presently subject to rapid evolution.
- Do we know where we are going?
- What are the driving forces?
- Is it good, bad or just plain necessary?
- Who is gaining and who is losing?

Infectious Diseases

Traditions vary...in Europe

1. Full specialty with dedicated wards

- Complete spectrum from "difficult-to-treat" bacterial infections" to HIV, viral hepatitis, tropical medicine, vaccinology, community public health
- CM then often emphasis on **analysis** with few or no direct patient contact
- A typical ratio ID / CM is then 5 / 1

2. Sub-specialty (with variations)

- Limited spectrum (HIV, tropical medicine, vaccinology)
- CM then often emphasis on **clinical consultation and direct patient care involvement**
- A typical ratio ID / CM is then 1 / 5

Clinical microbiology

Traditions vary...in Europe

- **Clinical and laboratory specialty**
 - partly clinical work (regular consultation in the ward, on rounds).
 - prescribes antibiotics and orders cultures.
 - "interferes" directly in patient care.
- **Laboratory specialty**
 - laboratory work (methods, QC, accreditation, computer, stats...)
 - consultation by telephone, committee work, education.
 - "interferes" indirectly in patient care.
- **"High-throughput production" in "cold" labs**
 - a laboratory far removed from the patient (and in some models the clinical microbiologist) and with no or very little consultation.
 - outsourcing of one, several or all services
 - does not interfere in patient care

Clinical / Medical microbiology

is more than just the laboratory exercise.

1. the **analysis** of a sample.
2. the **interpretation** and **synthesis** of results
(of several samples and often over time).
3. the **clinical consultation**.

Clinical microbiology

- **Analysis** –often by technical staff, but best under the leadership of a CM.
- **Interpretation** and **synthesis** of results – requires medical expertise and overview of results (vertical and horizontal)
- **Clinical consultation** – requires medical expertise, proximity to patient and ID and other medical staff.

Analysis + Interpretation + Consultation

Together these form the basis for

- **diagnosis**
- **therapy**
- **prevention**
- **infection control**
in healthcare and community

CM and ID working together

- **Diagnosis**

- increasingly complicated: new techniques; new or changing pathogens and diseases.

- **Therapy**

- increasingly difficult due to the combined effect of
 - antimicrobial resistance development
 - absence of new antimicrobial development.

- **Infection control** in healthcare and community

- increasingly difficult due to the rapid spread of successful clones (moving of patients, migration, travelling habits).

Current trends in clinical microbiology

- **Concentration** – of resources
- **Amalgamation** – of services
- **Outsourcing** – of services
- **Accreditation** – of laboratories
- **Explosion** – of competences
- **Automation** – of analysis

- **Concentration**

- **Trend:** smaller laboratories "eaten" by bigger, central laboratories.

- **Driving forces:**

- to save money,
 - to solve leadership and/or staffing problems,
 - to increase proficiency,
 - to increase diagnostic base,
 - to afford investments.

- **Negative consequences:**

- consultant microbiologist lost to the area/hospital,
 - infection control in the area may suffer,
 - delays because of prolonged transportation of samples, throughput time increased, education in microbiology cease to be an entity.

Amalgamation

- **Trend:** the creation of large medical laboratory services where biochemistry, microbiology, pathology, cytology, genetics etc share facilities (and leadership). Often combined with "concentration of services".
- **Driving forces:**
 - to share systems (IT, transport, administration)
 - to share competence (statisticians, computer scientists, epidemiologists etc)
 - to afford 24h-services,
 - to defend investments (robots, computer systems).
 - to solve leadership problems
- **Negative consequences:** unless microbiological leadership – microbiology may suffer, consultant microbiologist lost to the hospital, infection control may suffer, education in microbiology ceases to be an entity.

Outsourcing – selling out microbiology

- **Trend:** to "sell" microbiology (alone or as part of a total lab service) to big companies.

Model 1: ownership of local laboratory transferred

Model 2: laboratory abandoned – all samples transferred to outside laboratory (often a private enterprise).

- **Driving forces:**

- to save money,
- to solve leadership problems,
- to avoid investments (competence, new buildings, machines..).

- **Negative consequences:** clinical advice and consultation at risk, consultant microbiologist lost, overview lost, infection control at risk, public health overview at risk, education of staff at risk, delayed diagnostics (transportation of samples).

Accreditation

- **Trend:** accreditation of laboratory services.
- **Driving force:**
 - Patient safety
 - National harmonisation of services and quality
 - Fashion
 - Carrot and punishment!
- **Negative consequences:**
 - Streamlining (good and bad)
 - Conserves practices (good and bad).
 - Loss of freedom
 - Costly.
 - Too much focus on technical aspects?

Explosion of competences

Classical staff in Microbiology

- Clinical/Medical microbiologist
- Biomedical technicians (lab.techs, 3 years)
- Secretary
- Janitor

Explosion of competences

Current direction in staffing CM

- Clinical/Medical microbiologist (MD)
- Biomedical technicians (lab.techs, 3 years)
- Clinical scientists (non-MD)
- "MMMs" (Medical Molecular Microbiologists)
- Computer scientists
- Pharmacists
- Biochemists
- Epidemiologists
- Statisticians
- ...

Explosion of competences

- **Trend:** increase in professional diversity
- **Driving forces:**
 - the need for new competences (**good**)
 - shortage of medically trained microbiologists (**bad**)
- **Negative consequences:**
 - conserves the shortage of medical staff,
 - new competences lack medical training
 - medico-legal issues to be solved

Is there a shortage of medically trained clinical/medical microbiologists in your country?

Source: ESCMID Professional Affairs Questionnaire

16	Yes
8	No
2	No opinion

Automation

- **Trend:** robots with high degree of autonomy, analytical width and capacity across specialty borders.
- **Driving forces:**
 - saving labour; or competence(?),
 - analysis by robot requires more general and less specific knowledge,
 - shortened throughput time,
 - 24h runtime,
 - ergonomic.
- **Negative consequences:** loss of knowhow, tempting to consider it too automatic, dangers when all use the same patented reagents.

Microbiological services in European countries (labs/million inhabitants)

- Sweden 3.9
- The Netherlands 4.4
- The UK 4.6
- Norway 4.6
- Finland 4.7
- Lithuania 4.9
- Italy 5.1
- Austria 5.9
- Croatia 8.9
- Czech Republic 9.0
- Ireland 9.9
- Estonia 13.1
- Hungary 13.5
- Belgium 17.2
- France 69.2

Source: ESCMID Professional Affairs Questionnaire

Working together – CM and ID

- Infectious diseases, old and new, endemic, epidemic and pandemic, mild and severe, continue to constitute major threats to the well being and survival of modern man.
- Medical advances are in many fields dependant on the successful prevention, diagnosis a/o treatment of infections.
- Success is based on the close collaboration between the **diagnostic** and the **clinical** side of infectious diseases.
- Both specialties need **shared** and **separate** development.
 - In Sweden the common trunk is perhaps too short (6 months), the UK is experimenting with a longer common CM/ID trunk.

Working together in teams

With the increase in complexity (HIV, Hepatitis, multidrug resistance, conserving antibiotics, new diagnostics...) it becomes increasingly necessary to approach problems with multiple skills.

Teams of people representing multiple skills built around the ID and CM specialists are already reality in several countries.